

REMARKS/ARGUMENTS

Claims 1-30 are pending in the present application.

This Amendment is in response to the Office Action mailed September 18, 2003. In the Office Action, the Examiner objected to the title, Abstract of the Disclosure and rejected claims 1-7, 8, 9-17, 18, 19-27, 28, 29 and 30 under 35 U.S.C. §103(a). Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Rejection Under 35 U.S.C. § 103

1. The Examiner objected to the title because it is not descriptive. Applicant has amended the title to read as follows: Effective Bus Utilization Using Multiple Bus Interface Circuits and Arbitration Logic Circuit.

Accordingly, Applicant respectfully requests the objection to the title be withdrawn.

2. The Examiner objects to the Abstract because it fails to mention that the bus controller has two mode of operations. Applicant respectfully disagrees. The abstract as written provides sufficient information to enable the USPTO and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. 37 CFR §1.72. Here, the abstract provides a description on the two bus interface circuits, the processor interface circuit, and the arbitration logic circuit. They are sufficient to provide the nature and gist of the technical disclosure.

Therefore, Applicant respectfully requests the objection to the abstract be withdrawn

Rejection Under 35 U.S.C. § 103

1. In the Office Action, the Examiner rejected claims 1-7, 9-17, 19-27, 29, and 30 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication US2002/0052999 issued to Jahnke et al. ("Jahnke") in view of U.S. Patent No. 6,260,093 issued to Gehman et al. ("Gehman"), claims 1-7, 11-17, 21-27 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,619,661 issued to Crews et al. ("Crews") in view of Gehman, and claims 8, 18, and 28 under 35 U.S.C. §103(a) as being unpatentable over Jahnke in view of Gehman, as applied to claims 1-7, 9-17, 19-27, 29, and 30 above, and further in view of U.S. Patent No. 5,941,968 issued to Mergard et al. ("Mergard"). Applicant respectfully traverses

the rejection and contend that the Examiner has not met the burden of establishing a prima facie case of obviousness.

Jahnke discloses a multiple transaction bus system. The bus system has two advanced high performance bus (AHB): an AHB bus retained as a memory bus and an HTB provided for high data transfer bus (Jahnke, col. 2, lines 10-14). Each of the bus has its own arbitration system decoding (Jahnke, col. 1, lines 62-65).

Gehman discloses a method and apparatus for arbitrating access to multiple buses in a data processing system. Master devices located on each of the bus concurrently access resources on their individual buses (Gehman, col. 3, lines 44-46). A bridge connecting the buses to each other to move data acts like a master device or target device (Gehman, col. 3, lines 54-57).

Crews discloses a dynamic arbitration system and method. A bridge chip controls the system to cause a primary arbiter and a secondary arbiter to work independently in a concurrent mode of arbitration (Crews, col. 3, lines 58-61).

Mergard discloses a computer system for concurrent data transferring between graphic controller and unified system memory and between cpu and expansion bus device. A system includes a control processing unit (CPU) and a DMA controller. They share access to a unified system memory through a databus (Mergard, col. 5, lines 50-54). A system arbitration logic arbitrates between a processor and a DMA controller for access to the system memory (Mergard, col. 3, lines 66-67, col. 4, line 1).

Jahnke, Gehman, Crews, and Mergard, taken alone or in any combination, does not disclose, suggest, or render obvious (1) first bus interface circuit and a second bus interface circuit to interface to first and second buses, (2) a processor interface circuit to interface to a second processor, and (3) an arbitration logic circuit coupled to a processor interface circuit to arbitrate access requests from the first and second processors. Jahnke discloses two buses each having its own arbitration logic, not an arbitration logic to arbitrates access from both processors. Gehman merely discloses a bridge that act as a master. Gehman does not disclose a processor interface circuit to interface to a second processor and the arbitration logic. Crews merely discloses a concurrent mode of arbitration from two arbiters, not an arbitration logic to arbitrates accesses from both processors. Mergard merely discloses a CPU and a DMA sharing access to unified system memory through a single bus, not two buses.

The Examiner failed to establish a prima facie case of obviousness and failed to show there is teaching, suggestion or motivation to combine the references. "When determining the patentability of a claimed invention which combined two known elements, 'the question is whether there is something in the prior art as a whole suggest the desirability, and thus the obviousness, of making the combination.'" In re Beattie, Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 1462, 221 USPQ (BNA) 481, 488 (Fed. Cir. 1984). "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." Ex parte Clapp, 227 USPQ 972, 973. (Bd.Pat.App.&Inter. 1985).

In the present invention, the cited references do not expressly or implicitly suggest two bus interface circuits, a processor interface, and an arbitration logic to arbitrates accesses requests from two processors. In addition, the Examiner failed to present a convincing line of reasoning as to why a combination of Jahnke, Gehman, Crews, and Mergard is an obvious application of such an arbitration technique.

Therefore, Applicant believes that independent claims 1, 11, 21 and their respective dependent claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejection(s) under 35 U.S.C. §103(a) be withdrawn.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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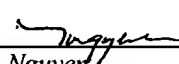
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